

Comparisons of Job Characteristics

Focus Occupation: **Mathematicians (15-2021)**

Associated Occupation: **Physicists (19-2012)**

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 90

Focus Occupation: **Mathematicians (15-2021)**

Associated Occupation: **Physicists (19-2012)**

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Physics	4.3	23.8	11.6	<<	Extensive education and/or training may be required
Mathematics	9.2	23.7	25.0	0	Current knowledge level may be sufficient
English Language	11.2	17.9	13.7	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	17.5	12.6	<<	Extensive education and/or training may be required
Computers and Electronics	8.4	17.1	17.2	0	Current knowledge level may be sufficient
Telecommunications	3.9	7.9	3.7	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 90

Focus Occupation: **Mathematicians (15-2021)**

Associated Occupation: **Physicists (19-2012)**

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	20.4	13.0	<<	Extensive development of skills in this area may be required
Mathematics	6.2	19.5	23.2	>>	Skill level is likely more than sufficient
Reading Comprehension	10.7	19.0	16.3	<	A higher skill level may be required
Critical Thinking	10.8	16.7	16.0	0	Current skill level may be sufficient
Active Learning	8.7	16.4	16.4	0	Current skill level may be sufficient
Complex Problem Solving	9.1	15.9	15.1	0	Current skill level may be sufficient
Learning Strategies	7.2	14.5	11.5	<	A higher skill level may be required

Programming	2.2	12.7	6.2	<<	Extensive development of skills in this area may be required
Technology Design	2.6	9.8	1.7	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 96			
Focus Occupation: Mathematicians (15-2021) Associated Occupation: Physicists (19-2012)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Mathematical Reasoning	6.3	20.7	20.6	0	Current ability level may be sufficient
Oral Comprehension	12.5	19.9	15.4	<<	Extensive improvement in abilities may be required
Written Comprehension	11.0	19.2	16.4	<	Some improvement in abilities may be required
Oral Expression	12.4	19.0	13.0	<<	Extensive improvement in abilities may be required
Number Facility	6.3	18.6	15.5	<	Some improvement in abilities may be required
Inductive Reasoning	10.2	18.3	14.4	<<	Extensive improvement in abilities may be required
Deductive Reasoning	10.6	17.8	15.7	<	Some improvement in abilities may be required
Originality	7.6	17.8	15.0	<	Some improvement in abilities may be required
Fluency of Ideas	7.6	16.6	14.3	<	Some improvement in abilities may be required
Information Ordering	9.9	16.3	14.7	<	Some improvement in abilities may be required
Category Flexibility	9.0	15.8	11.9	<<	Extensive improvement in abilities may be required
Speed of Closure	5.9	12.4	9.3	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 93
Focus Occupation: Mathematicians (15-2021) Associated Occupation: Physicists (19-2012)		
Work Activities	Exclusivity of Activity	
Advise clients or customers	19	
Advise governmental or industrial personnel	28	

Analyze scientific research data or investigative findings	27
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Develop mathematical ideas or interpretations	85
Develop mathematical simulation models	70
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Explain complex mathematical information	30
Make decisions	24
Make presentations	13
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Provide expert testimony on research results	66
Recommend further study or action based on research data	60
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use knowledge of investigation techniques	16
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use oral or written communication techniques	1
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 69

Focus Occupation: Mathematicians (15-2021)
Associated Occupation: Physicists (19-2012)

Tools and Technologies	Exclusivity
Computers	1

Content authoring and editing software	1
Data management and query software	1
Development software	4
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.